

Standards-Based Lesson Template

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Teacher:	Elvis Salgado
Class:	Integrated Math III
Lesson/Unit Title:	Unit 1 Lesson 3 / Surface Areas of Cylinders
Abstract/summary of lesson:	Students will be introduced to real life expectations of creating three dimensional figures which focus on the creation of vino corks and / or vino screw caps. After students identify the dimension of a vino cork and screw cap they will be able to use a 3D printer to create their own vino cap that is both functional, creative.
Students will know...	Students will be able to find surface area of cylinders using vino corks and screw caps.
Students will be able...	<ul style="list-style-type: none">•How geometry shapes such as the cylinder are used in real world scenarios.•How much material goes into making a cap.•The difference between volume and surface area.
Standards/Skills addressed	<ul style="list-style-type: none">•Will be able to create their own label for a bottle.•Will be able to produce a 3D model of a bottle cap•Will be able to reflect on their creation and ideas as a group.
Performance tasks/projects:	<p>During intervention, students will be able to explore higher learning concept by applying theoretical ideas from the unit of Surface area.</p> <p>Students will have a chance to develop and create their own bottle cap using a 3D printer. Student will present on the following: Design (Creativity), Density/Force (can it be applicable), and sustainable (environment impact)</p>
Test and quiz questions or essay prompts:	<ul style="list-style-type: none">•At the end of the unit, students will be able to take a summative assessment to reflect on their learning. They will have a range of 3D models, which they will need to identify the surface area of a given shape.•At the end of the lesson, students will have an exit ticket question to reflect on their learning. This will show me what students comprehend to better support students the next day.•On the second day students will be given a short quiz to support student learning from the previous day.
Other evidence to be used (e.g., observations, evaluation of work samples, discussion):	As I circulate the classroom, I will check for understanding base students discussion and asking questions to each group about what they learn or what they found interesting.
Student self-assessments:	<ul style="list-style-type: none">• At the end of the unit student will be able to reflect on the standards they learn by analyzing their summative assessment. Create an inquiry on what they know, what they need to know and how they will achieve their learning.
Objectives	Students will Be able to identify the surface area of a cylinder by investigating the dimensions of an object and creating a formula for surface area of a cylinder.

Motivation:

Students will have a variety of bottles (plastic) and aluminum sheet. Students will be ask to create a screw cap that fits the bottle given to their group.

Presentation:

Student will be able to discuss the challenges they faced based on the bottle they received and amount of aluminum foil. Students will present their bottle caps and identify the surface area needed to create their ideal screw cap. Students will also investigate the production of making the material along with maximizing the best return base on raw product.

Application/Activities:

- The use of vino screw caps will provide students with an idea of how mathematical concepts are apply in the workforce. Providing students with skills that will engage them in production of goods.
- The activity for this lesson, is having students create their own vino screw cap. This will be a gateway to creating cubes, and rings, and 3D objects of everyday things.

Materials needed:

- Study Guide
- Pencil
- 3D model shapes: Cube, Sphere, Cylinder, Dome, rectangular prism, triangular pyramid, square pyramid, rectangular pyramid and others.
- Vino Screw caps and corks
- 3D printer (performance task / higher learning)
- Computer (www.tinkercad.com)

Assessment/Evaluation:

Computer base assessment, exit ticket as the end of lesson, reflection from and presentation.

Closure/Reflection:

(Reflection / connecting): Explain the difference between finding the full surface area of a cylinder and only the lateral area of a cylinder.